

REMARKS

Favorable reconsideration of this application in light of the following remarks is respectfully requested.

Claims 1-20 are presently active in this case, Claim 1 amended by way of the present amendment.

In the outstanding Official Action, Claims 1, 2 and 6 were rejected under 35 U.S.C. § 102(b) as being anticipated by either U.S. Patent No. 5,078,851 to Nishihata et al. or U.S. Patent No. 5,290,381 to Nozawa et al.; Claims 1-8, 11, 12 and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,846,375 in view of either Nishihata et al. or Nozawa et al.; Claims 1-13 and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,753,272 to Lee et al. in view of either Nishihata et al. or Nozawa et al.; Claims 1-8 and 11-13 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,664,738 to Arai et al. in view of either Nishihata et al. or Nozawa et al.; Claims 15-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,949,722 to Strang et al.; and Claims 15-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Arai et al., Lee et al. or Gilchrist et al., in view of Strang et al.

First, Applicants wish to thank Examiner Macarthur for the May 17, 2006 personal interview at which time the outstanding issues in this case were discussed. During the interview, Applicants pointed out several deficiencies of the final action. Also during the interview, it was suggested to further clarify that the insulator is a “thermally insulating material.” Applicants have now made this change to Claim 1, but do not expect that this change will cause the present amendment not to be entered. If the Examiner should maintain her rejection in view of the amendments and arguments in this response, Applicants respectfully request that the Examiner enter this amendment for purposes of Appeal. If an

Advisory Action is issued, an Appeal will be filed based on the arguments presented in the May 17, 2006 interview.

Turning now to the merits, Applicants' invention is directed to a thermally zoned substrate holder assembly. Specifically, Applicants' Claim 1 recites a thermally zoned substrate holder including a base having top and bottom surfaces, the top surface configured to support a substrate. A plurality of temperature control elements are included inside the base, each element having top and bottom surfaces. Also recited is at least one substantially solid and thermally insulating material having a lower coefficient of thermal conductivity than a material of the base, the at least one insulator being disposed between the plurality of temperature elements and substantially thermally separating the plurality of temperature control elements.

The Newly Cited References Do Not Anticipate Claim 1

Figure 1 of the newly cited reference to Nishihata et al. discloses a plasma processing system having a sample holder 11 having a heater 20 therein for heating a substrate 23. A cooling container 13 is provided adjacent to a backside of the sample holder 11 in order to conduct heat away from the sample holder when necessary. As seen in Figures 1 and 2, the cooling container 13 is separated from the sample holder 11 by an electric insulator 12 in order to insulate the cooling container 13 from an RF power source provided to the sample holder 11. As described in Nishihata at column 4, lines 38-54, the electric insulator 12 is made of a material having a high thermal conductivity, and includes thermal conductors 14 thereon to further improve the heat transfer from the sample holder 11 to the cooling container 13. Thus, the electric insulator is designed to provide high thermal conductivity from the sample holder 11 to the cooling container 13.

The outstanding Official Action cites Nishihata et al.'s heater 20 and cooling container 13 as the claimed temperature control elements, and electric insulator 12 as the solid insulator

disposed between temperature control elements. However, the cooling container 13 is not included “inside the base” as required by Claim 1; as noted above, the cooling container 13 is provided as a separate unit in communication with the base via the electric insulator 12. The outstanding Official Action does not address this limitation. Perhaps more importantly, however, the electric insulator 12 is not a solid insulator having a lower coefficient of thermal conductivity than a material of the sample holder 11; as noted above, the electric insulator is disclosed in Nishihata et al. as providing a high thermal conductivity, rather than thermally insulating. The Official Action also fails to address this limitation. For these reasons, the rejection of Claim 1 as anticipated by Nishihata et al. is improper.

The newly cited reference to Nozawa et al. discloses a liquid plasma edging apparatus. As seen in Figure 1 of this reference, the apparatus includes a substrate holder having an upper susceptor 12 and a lower susceptor 14. A cooling jacket 21 is provided below the substrate holder with a ceramic insulating frame interposed therebetween. Thus, as with the Nishihata et al. reference, Nozawa et al. does not disclose that the plurality of temperature control elements (including the cooling jacket 20) are provided inside the base. Indeed, the outstanding Official Action does not even mention the base in rejecting Claim 1 based on Nozawa et al., let alone the temperature elements in relation to the base. Still further, Nozawa et al. also discloses that the insulating frame 16 is ceramic, and does not disclose that this insulating frame provides thermal insulation as required by Claim 1. It is well known to one of ordinary skill in the art that ceramics are generally thermal conductors. Therefore Claim 1 is not properly anticipated by Nozawa.

The Obviousness Rejections of Claim 1 are Improper

Regarding the combination of Nozawa and Nishihata et al. with each of Gilchrist et al. and Lee et al., previously cited, Applicants also traverse these rejections. As explained in the December amendment, the cited reference to Gilchrist does not disclose at least one insulator

being disposed between a plurality of temperature control elements and substantially thermally separating the plurality of temperature control elements. The outstanding Official Action does not address this deficiency, but rather cites Nishihata and Nozawa for a solid insulating material. As noted above, Nishihata and Nozawa do not disclose a thermally insulating material positioned between temperature control elements. Therefore, these references cannot correct the deficiencies of Gilchrist, and the rejection based on this combination is improper.

The December 20th response also explained that the cited reference to Lee does not disclose a substrate holder base having top and bottom surfaces, a top surface configured to support a substrate, and a plurality of temperature control elements inside the base each element having a top surface and a bottom surface. Again, the outstanding Official Action does not address this argument, but rather cites Nishihata et al. and Nozawa et al. as teaching a solid insulator, which as noted above is not taught by these references.

The December 20th amendment also explains that Arai et al. does not disclose a substantially solid insulator having a lower coefficient of thermal conductivity than a material of the base being disposed between the plurality of temperature control elements. While the Official Action cites Nishihata et al. and Nozawa et al. as teaching the solid insulating material, the action again ignores the requirement that the insulating material be a thermally insulating material. Thus, the rejection based on this combination is also improper.

The Rejection of Claim 15 Must Be Withdrawn

Regarding the rejection of Claim 15 based on Strang et al., 35 U.S.C. § 103(c) provides that subject matter developed by another which qualifies as “prior art” only under one or more of subsections 35 U.S.C. § 102(e), (f) and (g) is not to be considered when determining whether an invention sought to be patented is obvious under 35 U.S.C. § 103, provided the subject matter and the claimed invention were commonly owned at the time the

invention was made. The cited reference to Strang et al. qualifies as prior art only under 35 U.S.C. § 102(e) and is applied by the outstanding Official Action in a rejection under 35 U.S.C. § 103. However, the present application and Strang et al. were, at the time the invention of the present application was made, owned or subject to assignment to Tokyo Electron Limited. Thus, in accordance with M.P.E.P. § 706.02(1)(2)(II) the cited reference to Strang et al. is disqualified for being used in a rejection under 35 U.S.C. § 103(a) against the claims of the present application. Thus, Applicants' independent Claim 15 also patentably defines the recited references.

For the reasons discussed above, Applicants' independent Claims 1 and 15 patentably define over cited references. As Claims 2-4 and 16-20 depend from these independent claims, these dependent claims also patentably define over the cited references.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application and the present application is believed to be in condition for formal allowance. An early and favorable action is therefore respectfully requested.

Respectfully submitted,

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